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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,101	01/28/2004	Chul Woo Park	AMKOR-100A	2186
7663	7590	03/07/2006	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER 75 ENTERPRISE, SUITE 250 ALISO VIEJO, CA 92656			VIGUSHIN, JOHN B	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,101

Applicant(s)

PARK ET AL.

Examiner

John B. Vigushin

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0904a & 0904b.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

References Based On Prior Art

1. The following references were relied upon for the rejections hereinbelow:

Miks et al. (US 2005/0030723 A1)

Lo et al. (US 5,617,297)

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 7-15 and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Miks et al.

As to Claims 1 and 11, Miks et al. discloses, in Figs. 1B and 2A: a memory card 10 (paragraph [0008]) comprising: a substrate 11A,B with top and bottom surfaces and terminals 14 on the bottom surface; at least one component 13 mounted to the top surface and electrically connected to terminals 14 (Fig. 1B); a first encapsulation part 12A formed on the bottom surface of substrate 11A,B and second encapsulation part 12A formed on the top surface of substrate 11A,B and encapsulating the component 13 (Figs. 1B and 2A; i.e., the card 19 is fully molded: see paragraphs [0021] and [0026]).

As to Claims 2 and 12, Miks et al. further discloses the first encapsulation part includes an opening therein, the substrate terminals 14 being exposed in the opening (Fig. 2A and paragraph [0026]).

As to Claims 3 and 13, Miks et al. further discloses the second encapsulation part 12A defines an opposed pair of sides, and a pair of coupling notches 16D formed in respective ones of the sides of the second encapsulation part in opposed relation to each other (Fig. 1B; paragraphs [0023] and [0025]; in Fig. 2A, the profile of some of the notches can also be seen in the second encapsulant).

As to Claims 4 and 14, Miks et al. further discloses the terminals 14 extend in spaced, generally parallel relation to each other (Fig. 1B); the second encapsulation part 12A defines an opposed pair of peripheral edge segments (the notches 16D) which extend in spaced, generally parallel relation to terminals 14 (Fig. 1B); and a pair of guide slots are formed in respective ones of the peripheral edge segments in opposed relation to each other in order to provide an interlocking feature (Fig. 1D and paragraph [0025]).

As to Claims 5 and 15, Miks et al. further discloses the second encapsulation part 12A includes a recess (which functions as the interlocking feature; see paragraphs [0023] and [0025]) formed therein adjacent a peripheral edge segment of the second encapsulation part 12A disposed furthest from the terminals (this can be best seen in Fig. 1B where the encapsulant part 12A includes a recess--along the horizontal peripheral edge segment at the top portion of encapsulant part 12A in Fig. 1B--which is furthest from the terminals 14).

As to Claims 7 and 17, Miks et al. further discloses the first (lower) encapsulation part 12A is of a first thickness and the second (upper) encapsulation part 12A is of a second thickness which exceeds the first thickness (Fig. 2A).

As to Claims 8 and 18, Miks et al. further discloses multiple components 13 and 17 mounted to the top surface of substrate 11A,B and electrically connected to the terminals thereof (Fig. 2A; paragraph [0026]).

As to Claims 9, 10 and 19, Miks et al. further discloses the components are a combination of a semiconductor die 13 and a passive component 17 (paragraph [0026]) selected from the group consisting of a semiconductor package, a semiconductor die, a passive component, and combinations thereof, wherein the semiconductor die 13 is wire-bonded to substrate 11A,B through a conductive wire and the passive component 17 is surface-mounted to the top surface of substrate 11A,B (Fig. 2A and paragraph [0026]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miks et al. in view of Lo et al.

As to Claims 6 and 16:

I. Miks et al. discloses the first and second encapsulation parts 12A of the card 10 are each fabricated from a mold compound (paragraphs [0021] and [0026]) but does not identify the compound.

II. Lo et al. discloses a molding compound 140 that encapsulates the card 10 and teaches that the molding compound may include any of a variety of conventional packaging resin materials including epoxy (col.4: 17-20; col.4: 66-col.5: 2).

III. Since both Miks et al. and Lo et al. teach encapsulating a card with molding compound in order to protect the board and components mounted thereon, then the use of an off-the-shelf epoxy molding compound to accomplish this, as taught by Lo et al., would have been readily recognized in the pertinent art of Miks et al.

IV. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well-known reliable off-the-shelf epoxy molding compound for the first and second encapsulation parts of Miks et al. in order to provide

effective protection to the memory card of Miks et al. and the components mounted thereon, as taught by Lo et al.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Chakravorty et al. (US 5,893,724) discloses an epoxy molding compound that is used to fully encapsulate a BGA package in order to protect the package and, additionally, to balance stresses on the top and bottom surfaces of the substrate and thereby reduce substrate warpage (Fig. 4; col.5: 45-55 and col.6: 10-16).

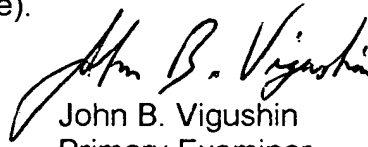
b) Bolken (US 2002/0190429 A1) discloses encapsulation parts fabricated from an epoxy molding compound (p.7, Claim 7) and also teaches a recess 60 formed in the peripheral edge segment of an encapsulation part (Figs. 1, 4 and 4a,b; paragraph [0049]) that is furthest from edge terminals 24 (Figs. 2 and 3).

c) Rostoker et al. (US 5,729,894) discloses recesses 242 and notches 260-267 in the molding encapsulant 226 in order to provide an orientation index, strain relief and access to package connections for power and ground (Figs. 4 and 5; col.5: 30-37; col.5: 56-col.6: 11).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 571-272-1936. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John B. Vigushin
Primary Examiner
Art Unit 2841

jbv
March 02, 2006